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BULLETIN

THE CALIFORNIA POLYTECHNIC

With Junior College Division

A STATE INSTITUTION OF

Agriculture, Engineering, Mechanics, Aeronautics,
Carpentry, Electricity and Printing



Block "P" Athletic Men—West Entrance of Gymnasium

San Luis Obispo, California
1929-30

THE CALIFORNIA POLYTECHNIC CATALOGUE

Printed at the California Polytechnic Print Shop

1929

THE CALIFORNIA POLYTECHNIC
ADMINISTERED THROUGH
THE STATE DEPARTMENT OF EDUCATION

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SCHOOL CALENDAR

1929

Registration of new students, Wednesday, Thursday, Friday, Sept. 4, 5, 6.
 Registration of former students, Saturday, Sept. 7, and Monday, Sept. 9.
 Dormitories and Dining Hall open for students, Wednesday, Sept. 4.
 Special assembly for new students, Monday 11 a. m., Sept. 9, Gymnasium.
 Enrollment and Physical Examination new students, Saturday, Sept. 7, Gymnasium.
 Regular class work begins 8:15 a. m., Tuesday, Sept. 10.
 Home-Coming, Saturday, Nov. 2.
 Armistice Day, Tuesday, Nov. 12. Battalion and Band in Parade.
 Thanksgiving Recess, Wednesday noon to Sunday evening, Nov. 27 to Dec. 1.
 Christmas vacation, Dec. 20 to Jan. 5.

1930

Class work begins Monday, Jan. 6.
 End of Semester, Friday, Jan. 24.
 Beginning Second Semester, Monday, Jan. 27.
 Spring Vacation, April 18-27.
 Class work begins Monday, April 28.
 Annual School Festival, Thursday, May 1.
 Decoration Day, Friday, May 30. Battalion and Band join in Observance.
 Commencement, Thursday, June 5.
 School Closes, Friday, June 6.

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LOCATION

The California Polytechnic is delightfully located upon a beautiful tract of land of about a thousand acres half a mile from the city limits of San Luis Obispo, the county seat. Paved highways lead by easy grades over the surrounding hills through passes to the north and south, toward the ocean, 13 miles to the west, and over the rolling hills that form a barrier between the ocean region and the San Joaquin valley. Natural advantages of climate are aided by the hills which halt the drifting fogs and break the occasional winds. There is an even temperature, with a minimum of 40 and a maximum of 90 degrees, affording one of the most uniform and enjoyable climates in California.

GROUNDS

The campus consists of thirty acres of gently undulating land, carefully landscaped and planted to trees and ornamental shrubs. Winding walks and drives traverse the entire campus. California Boulevard, leading from the city limits to the campus, is typical of beautiful California.

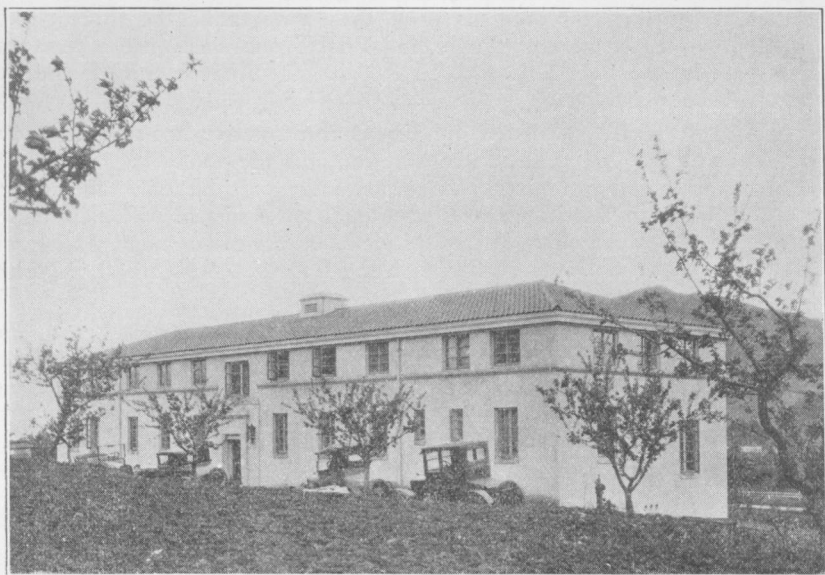
BUILDINGS

The Administration Building. This is a three-story structure with an attractive exterior of tan stucco. Here are the administrative offices, office of the President, and class rooms for English, Journalism, Foreign Languages, Agriculture and Mathematics. The department of Music, Dramatics and Public Speaking uses the east portion of the third floor. The first floor is occupied by the Military department as an armory.

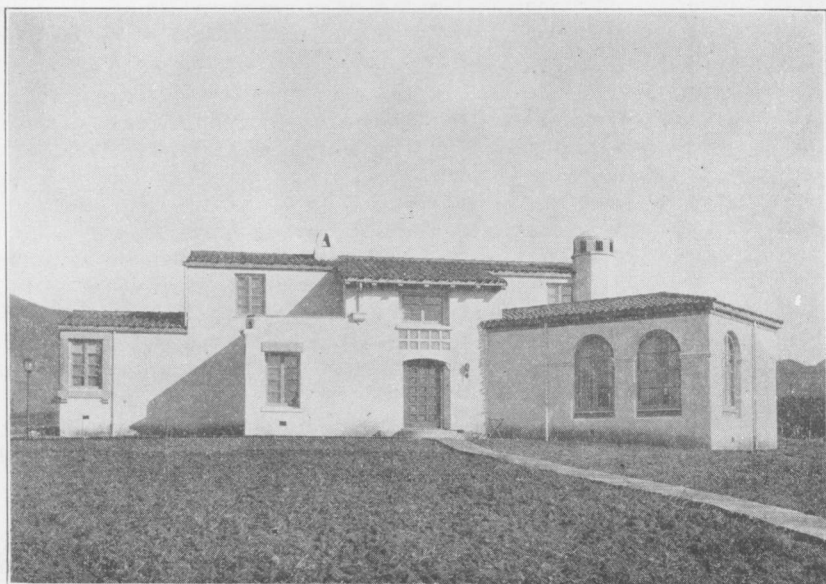
Science Hall. This building forms one side of a quadrangle with the Administration as a second side. Science Hall is a stucco building the first floor of which is utilized for well equipped laboratories of Chemistry and Physics. The second floor is devoted to the Students' Cooperative Store, and the combined Study Hall and Library. The Library is supplied with 5,000 reference books. Here the ambitious student may have ample opportunity for assigned and outside reading in English, History, Agriculture, Mechanics, Science and other subjects. About fifty magazines are regularly subscribed for, especially those dealing with Agriculture. An adequate supply of government and state bulletins is on file. Four sets of encyclopediae are available together with bound copies of various magazines for reference. On the third floor of Science Hall are two well-lighted drafting rooms.

College Building. Of similar construction is the College Building. It is devoted primarily to the use of the Junior College students. On the first floor are class-rooms in Applied Science, History, Political Science, Dramatics and Public Speaking and laboratories for Biology and Zoology. On the second floor are class rooms for Mathematics and English and a small social unit.

Print Shop. This is a well lighted, one-story frame building, on the north edge of the campus. It is equipped with three late model linotype machines, cylinder and job presses, cutting and stapling machines, a battery of hand type cases, and other equipment usually found in a modern print-



Heron Hall, newest of the boys' dormitories.



The President's Residence, constructed in the fall of 1928.

ing establishment. In addition to the regular instructional work of the classes in printing, the students print the "Polygram," the student-body paper published bi-weekly; the "Hand Book," published once a year and sponsored by the Poly-Y Club; "El Rodeo," the student annual, and the regular school Catalog.

Heron Hall. This new building is an attractive two-story fireproof structure of concrete with stucco exterior and tile roof. It comfortably accommodates fifty-eight boys and is essentially for those who take college work. The rooms have built-in dressers and are equipped with new tables and chairs of golden oak. There is a pleasant recreation room. In Heron Hall, as well as in Deuel Hall and in the Barracks, boys are at all times under direct personal supervision.

Deuel Dormitory. In this two-story dormitory sixty boys find pleasant rooms. Two boys usually room together, and all are under direct supervision. In the recreation or lounging room are comfortable rocking chairs, an open fireplace and a table for playing pool. In this room the boys have their games and weekly business meetings.

New Dormitory. A new dormitory, as yet unnamed, is to be erected in the summer of 1929. It closely resembles Heron Hall in size, type, and construction.

The Barracks. Situated on the north side of the campus the Barracks holds accommodations for forty boys. As the name implies, the "Barracks" is unpretentious, and of frame construction with a comfortable room for every two boys. Here also, the boys are under direct personal supervision at all times.

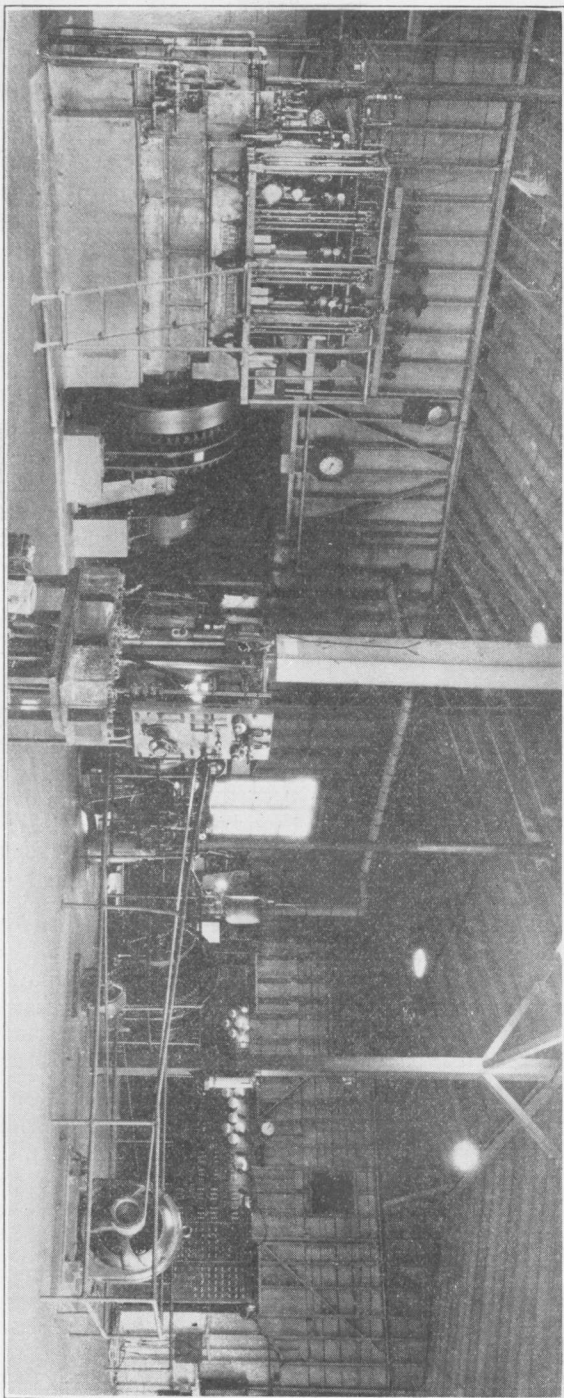
The President's Residence. This new two-story building of beautiful Mission architecture is situated on a knoll in close proximity to the dormitories, and commands a wide view of campus and hills. President and Mrs. Crandall, who take deep interest in boys and boys' problems, find pleasure in entertaining the boys singly and in groups.

Crandall Gymnasium. In this new two-story building, student activities center. Assemblies of the student body, indoor athletics, dramatic performances, graduation exercises and receptions take place here. The gymnasium floor, 60 by 94 feet, free from obstructing pillars, offers opportunity for basketball, volleyball, etc. At the north end of this large room is a stage 24 by 32 feet. Opposite the stage are bleachers with a seating capacity of 600. When it is desired to use the room for Assembly or other occasions, folding chairs may be used to increase the seating capacity to twelve hundred. At the west end of the building are rest rooms, a social room of ample size, a small kitchen, and convenient office rooms for the instructors in athletics. Showers and locker rooms are located in the basement on the south side.

Dining Hall. A short distance north of Deuel Dormitory is an attractive, T-shaped building of stucco exterior. This Cafeteria Dining Hall is adequately equipped for boarding all the students.

Power Plant and Mechanics Laboratory. The school has its own electrical power generating plant. This consists of two 100 H. P. Sterling boilers with a 75 H. P. steam-electric generating unit, a 50 H. P. gas engine belted to an electric generator, a Diesel engine connected to an electric generator of 100 H. P. The student not only has the regular

Interior of school Power Plant. Note Diesel engine at left. The school has its own heating and lighting plant, supplying heat, light and power for the entire campus. This equipment is available for experimental and instructional use.



laboratory equipment of small gas and steam engines, but also large power-generating units for test purposes. There is adequate equipment for general laboratory instruction in gas and steam work.

Electrical Engineering Building. This new and attractive building, 40 by 110 feet, is placed close to the power plant. Designed for electrical work, the building is modern and contains a test room 20 by 100 feet, two class rooms, an instrument room and a small room for more advanced electrical measurement work. The main test room is equipped with modern types of electrical machines, A. C. and D. C. switch boards, test tables, control apparatus, transformers, and instruments for running all kinds of commercial tests. Because of the proximity of the electrical building to the power plant, opportunity is afforded students of electricity to obtain practice in power plant operation as well as practical experience in substation operation.

Automobile Shop. This is one of a group of shops east of the academic buildings. The Automobile Shop is of frame construction and houses the work in automobile operation, upkeep and repair. It is equipped with a traveling crane for handling any heavy machinery parts to be repaired. It has stands, jacks, work benches and work platforms of the latest approved types. The cylinder boring machine will do reboring work with such accuracy that finished jobs will vary less than one ten-thousandth of an inch. The oxyacetylene welding equipment includes four torches of the latest type.

Aeronautics Laboratory. Adjoining the Automobile Shop, and operated in conjunction with it, is the Aeronautics Laboratory. Here the student learns all ground work connected with aviation. Motors are torn down, overhauled and built up according to precise aeronautical specifications. The shop is equipped with aircraft motors of representative types including rotary, vertical and vee-type, also propeller balancing stands and test stands. Motors are given actual running tests. Adequate equipment is provided for learning ship design, construction and rigging.

The Forge Shop. Here are located twenty-four individual forges and anvils, a power grinder, power hammer, tire upsetting and tire binding machines, blacksmith shears, drill press and power blower and exhaust fans. All necessary small tools and equipment to go with this heavy machinery are supplied. In addition to the usual equipment found in the forge shop there is acetylene and electric welding equipment and a small brass foundry.

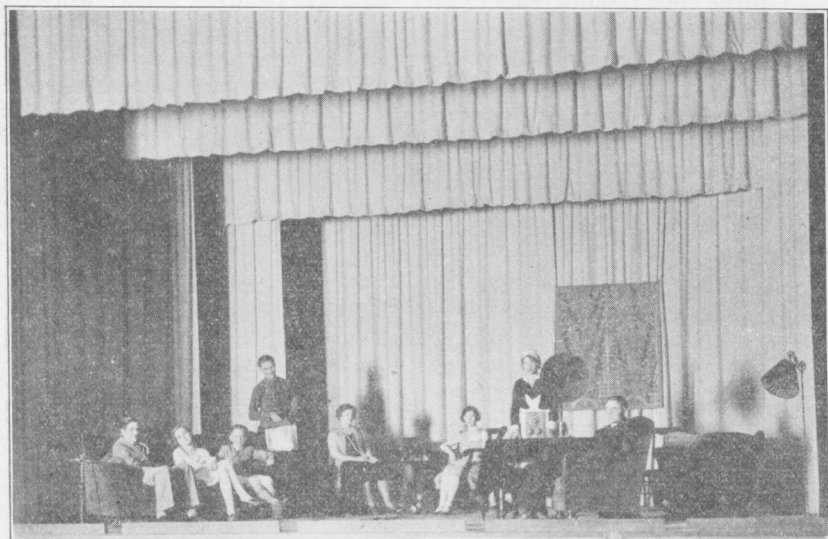
Machine Shop. This has a tool room where accurate check can be kept on all small tools being used. The large machinery includes eighteen lathes, two shapers, two drill presses, vertical mill, milling machine, tool grinder, planer, power hacksaw, an even-type gas furnace. A recitation room adjoins the shop.

Woodworking Shop. Here is equipment for woodwork instruction for engineering students. The equipment includes individual motor-driven surfacer, jointer, band saw and five turning lathes. There are twenty-one work benches with full equipment of tools for each.

Other Buildings. There are a number of agricultural buildings, including barns, creamery, poultry houses, green houses and shops.



Interior of drafting room for upper division students.



Cast of "Station Y Y Y Y" given by the Campus Play Shop.

STUDENT GOVERNMENT

The Student Affairs Committee, commonly called the "S. A. C.," has as its primary object the control of all student affairs. To make the body as representative as possible there are selected from among the students as members of the committee the six class presidents, the student athletics manager, the school yell-leader, the editor-in-chief of the Polygram, together with the presidents of the following chief student organizations: Junior Farm Center, representing the Agriculture students; the Mechanics Association, representing the boys taking shop work; the Amapola Club, representing the girls; the Poly-Y Club; and the Block P Club representing the boys who have won major events in athletics. The faculty is represented by the president, vice-president and four other members, three of whom are advisers of student activities.

This committee decides all policies in regard to athletics, dramatics, operettas, school publications, and any other activities which include the students as a whole. For financing these activities, seven dollars a year is received from each student, five dollars going to athletics, and one and a half to the "Polygram" and "El Rodeo," and fifty cents to the general fund. In return for his money the student receives free admission to all school athletics on the campus, a bi-weekly copy of the Polygram, a copy of the annual edition of "El Rodeo," and the benefit of many student activities, such as dramatics, music, and social affairs.

A general fund is maintained by the committee to support general student activities.

CLUBS

Amapola Club. A social club for girls. Its chief objective is to unite the girls in close association of friendship.

Band and Orchestra. These two organizations afford splendid opportunities to students who wish to learn how to play instruments and to know something of instrumental music. Although the California Polytechnic does not supply all the instruments, it does furnish sheet music to the student without cost. The present band is composed of sixty pieces. It is conducted as a complete military unit, as a company with full quota of officers. It plays at military drills, at patriotic observances, at school athletics and entertainments.

Block "P" Club. Exclusively for winners of the block letter in major athletics for boys.

Choral Club. A musical organization of both men and women. Membership depends upon ability and is subject to try-outs.

Co-operative Store. A store for books and supplies. Operated on the campus by and for students.

Debating Club. For those taking Public Speaking or Debating. The object of the club is to develop latent ability and to acquire self confidence.

Deuel Dorm Club and Heron Hall Club. Organized among the boys for promoting school spirit and social activities.

Dramatics Club. For those interested in plays, makeup, stage effects and play production. Composed of both men and women.

Galley Slaves. A club of students who are interested in type setting and printing.

Junior Farm Center. For students of Agriculture. This is an active organization co-operating with the Farm Bureau. The Junior Farm Center members take part in county farm work, contributing occasional articles to the Farm Bureau Monthly, exhibiting poultry and livestock at shows, visiting Farm Center meetings, and giving talks and entertainments.

Mechanics Association. The engineering and mechanics association is for the purpose of acquainting its members with phases of problems likely to be met in every day life after leaving school. Trips are arranged for, to include sugar refineries, oil fields and compressor plants, round houses, etc. The association's social program is varied and interesting.

Poly-Y Club. This is affiliated with the national Hi-Y Association, and is organized for the purpose of creating, maintaining and extending throughout the school and the community high standards of Christian character.

Press Club. Composed of men and women interested in Journalism and magazine work. Membership includes all students of the Polygram and El Rodeo staffs as well as Galley Slaves and the class in Journalism.

STUDENT PUBLICATIONS

El Rodeo. The student annual. Edited and printed by the students, El Rodeo is well written, profusely illustrated, typifies accurately the spirit and activities of the students, and affords excellent training for staff members.

Polygram. A bi-weekly paper printed in the school print shop by the students. It is newsy and full of interest.

The Hand Book. A compact little book of information for new students. It is presented annually by the members of the Poly-Y Club.

Polytechnic Catalogue. Although this annual catalogue is not strictly a student publication, the students of the Print Shop do all the linotyping and printing. From time to time small illustrated folders specially emphasizing certain phases of the school work appear, the printing of which is also done in the school shop by the students.

GENERAL INFORMATION

Entrance Requirements. Students of a wide variety of age and education may be found at the Polytechnic. The past year the ages ranged from thirteen to thirty-five. Most of those who come have had from one to three years of high school training, about 30 per cent are high school graduates, a few have had college work. The minimum entrance requirement is grammar school graduation, unless the applicant is at least sixteen years old and able to pass an aptitude test given by the school.

High School Credits. Credits received for work done in high school will be accepted in so far as they cover subjects corresponding to those required in the course selected at this institution.

Discontinuance of Work for Girls. The California Legislature at the request of The State Board of Education has ruled that no more girls may be admitted to The California Polytechnic and that those

now in attendance may continue only until the end of the school year 1929-30. The reasons for this policy are two-fold. First: When the work for girls was instituted at the school at its founding in 1903, courses in Home-Making were being given at few if any of the high schools of California. Adequate courses are now being given in most of the high schools of the State. Second: Because of the fact that no dormitories for them have been provided, the number of girls in attendance is very small, only a little more than five per cent of the total enrollment. The maintenance of satisfactory courses for girls in special departments would, therefore, involve a heavy financial expenditure in proportion to the number enrolled.

Board and Room. Boys whose homes are not in San Luis Obispo are required to live in dormitories on the campus unless accommodations in these buildings are exhausted. In that case the boys are referred to approved homes. Applications for room reservations in the dormitories must be made early and each application accompanied by a deposit of \$5.00. Dormitory students pay a flat rate for board at the cafeteria on the campus.

Self Support. There is limited opportunity for the student who wishes to "work his way," especially for those students taking Agriculture. However, it is inadvisable for any student to enter school without funds sufficient to cover four or five month's board and room in addition to the initial outlay referred to under the heading *expenses*. Opportunity in Agriculture is afforded under the project method, and is made in each case by personal arrangement between the student and the head of the Department of Agriculture. The new student who wishes to be assigned a project should, if possible, write in advance to the head of the Department of Agriculture, California Polytechnic, for detailed information. Aside from work in Agriculture, there is a limited amount of work to be done in spare time on the campus and in town. Work of this nature includes janitor service, office work, waiting on tables, etc.

SCHOLARSHIPS

For deserving students in need of financial assistance there are ten scholarships available each year. The faculty of The California Polytechnic annually subscribes seven scholarships of two hundred fifty dollars each.

Other scholarships are:

The Harold Anderson Memorial Scholarship, subscribed annually by the San Luis Obispo Rotary Club. This two hundred fifty dollar scholarship is usually awarded to an upper class student who is outstandingly a leader.

The Booth Brothers Scholarship of seventy dollars, subscribed annually by Booth Brothers of Paso Robles and San Luis Obispo.

The Berkemeyer Scholarship of seventy dollars, annually subscribed by Berkemeyer and Son, San Luis Obispo.

EXPENSES

No Tuition. There is no charge for tuition, and no registration fee except the student-body fee of seven dollars. A shop deposit of \$5.00, refunded at end of year, is required of all students. The registration deposit and room reservation deposit, referred to under *initial outlay*, are

made only by boys rooming in dormitories, and these deposits are refunded at the end of the school year.

Personal Expenses. Boys rooming in the dormitories are expected to supply their own sheets, pillow cases, blankets, towels, soap, drapes and rugs. Beds, pillows, mattresses, dressers, tables and chairs are part of the room equipment and are furnished at no cost to the student. Rooms are assigned in the order in which applications are received. All rooms are outside rooms, comfortable and well lighted. The student will need to estimate his personal expenses in the matter of extra clothing, incidentals and laundry. Sheets, pillow cases and towels are laundered by the school free of charge for students rooming at the dormitories. At a flat rate of \$2.50 per month through the school year a student may have his personal laundry done by the school provided his weekly bundle does not exceed: 4 shirts, 3 pair underwear, 1 pair pajamas or night shirt, 4 pair socks, 6 handkerchiefs, 1 pair overalls, 1 sweat shirt.

Initial Outlay for Boys. Boys who room at the dormitories should be prepared to pay a sum aggregating about \$130.00 at time of registration. This initial outlay covers items as follows:

(a) Military uniform, consisting of hat, shirt, trousers, puttees and shoes	\$25.00
(b) Registration deposit, refunded at the end of school year.....	30.00
(c) Board, one month in advance.....	27.00
(d) Room rent, one month in advance, the amount varying according to type of room,—but not exceeding.....	7.50
(e) Textbooks and school supplies for immediate needs.....	15.00
(f) Student-body fee. No refund after February 1st.....	7.00
(g) Shop deposit, refunded at end of school year.....	5.00
(h) Room reservation fee.....	5.00
(i) Gymnasium towel fee	2.50
(j) Gymnasium suit	5.00

Total initial outlay needed when registering.....	129.00
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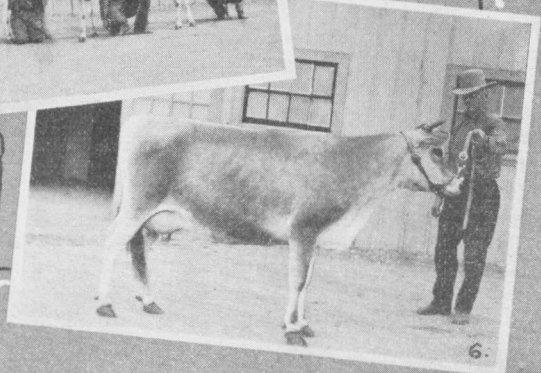
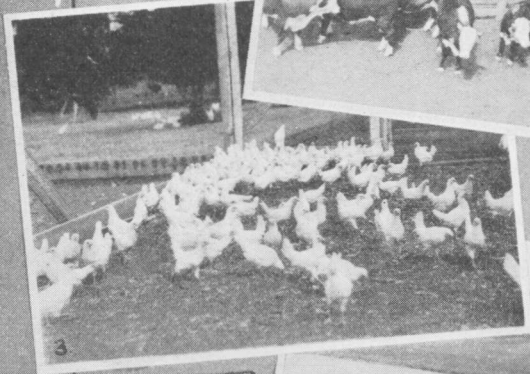
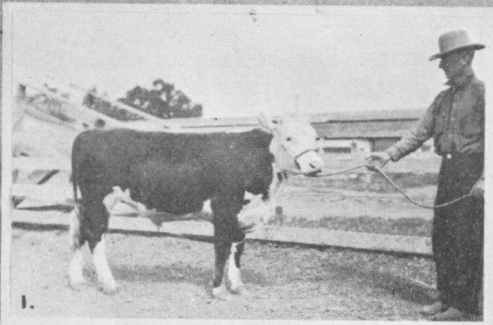
Note.—For students taking mechanical drawing or machine work, item (e) will be fifteen to twenty dollars higher. Items (b), (c), (d) and (h) do not apply to students living elsewhere than in dormitories. Under item (a) it is well to have two shirts instead of one, increasing this item five dollars.

Further Expenses. For the remainder of the school year the student will need to pay:

Board, seven months at \$27.00.....	\$189.00
Room rent, eight months.....	60.00
Additional school books and supplies.....	20.00

Total	269.00
To which is added the initial outlay as listed above.....	129.00

Making the cost of one year at school.....	398.00
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AGRICULTURE COURSE

Slogan—"Earn While You Learn."

COURSE OF STUDY

First Year			Second Year		
	Class	Prac- tice		Class	Prac- tice
English I.....	5	0	English II.....	5	0
Farm Arithmetic.....	5	0	Business Methods and Accounts.....	5	0
General Agriculture—field practice and project with records and supervision..	5	8	Animal Husbandry I and projects, project re- cords and supervision.....	5	8
Farm Mechanics I—car- pentry, concrete, build- ings, harness and rope work.....	2	9	Farm Mechanics II— forge, cold metal, solder- ing, care and repair of farm machinery.....	2	8
Study.....	0	5	Physical Education.....	0	5
Physical Education.....	0	5	Assembly.....	0	1
Assembly.....	0	1	Study.....	0	5
Total periods per week..	17	28	Hygiene.....	0	1
			Total periods per week..	17	28
Third Year			Fourth Year		
English III.....	5	0	U. S. History and Civics.....	5	0
Lab. Science—Biology, Chemistry or Physics.....	3	4	Elective—Physics, Math.....	5	0
Dairy Husbandry or Veg- etable Gardening with projects, project records, and supervision.....	5	9	Farm Management.....	5	0
Farm Mechanics III— Farm power, stationary engines, electricity.....	2	6	Feeds and feeding..... (Or Horticulture—3-7)	5	0
Study.....	0	5	Farm Mechanics—auto, tractor, surveying.....	2	10
Physical Education.....	0	5	Physical Education.....	0	5
Assembly.....	0	1	Study.....	0	7
Total periods per week..	15	30	Assembly.....	0	1
			Total periods per week....	22	23

Glee Club and Band are elective in all years.

Of all industries Agriculture has been the slowest to take advantage of the discoveries of science, many of which would be of the greatest possible advantage to the farmer. The aim of the Agriculture department of the school is to bring together in workable form facts gained from field and laboratories, to develop from them permanent principles of agriculture, and to make these available to the students. The methods of teaching which are adapted for boys over sixteen years of age are intensely practical. One half of each school day is spent on the farm, the other half in classrooms; a method which appeals to practical-minded boys. The project method of instruction in Agriculture, as developed at The California Polytechnic, is interesting and economically profitable. About one thousand acres of land are available for project work. There are buildings, laboratories, shops, barns, orchards, vineyards, herds and flocks of the leading breeds of sheep, cattle, hogs and poultry. These afford ample opportunity for obtaining practical and technical training in all phases of Agriculture. Adjacent farms render further opportunity for demonstration, study and judging of diversified farming, orchards, vineyards, poultry and livestock.

If a student engages in project work requiring funds for his original investment, he may, if unable to secure funds, depend upon the local banks to lend him the necessary amount when the loan is approved by the agricultural department and the president of the school. If a boy is interested in poultry, the project method will allow him, according to the loan-fund plan, to purchase and incubate five hundred or a thousand eggs, brood the chicks and feed and care for the young poultry under ideal conditions and expert advice. If interested in livestock, the student will be able, by the project method supplemented by the loan fund, to select his young stock and purchase it for feeding and fattening. Baby beef is sold by students at the Fat Stock show in Los Angeles in December. Students also market hogs in carload lots when the animals have attained desirable market weight. The school dairy project allows three boys to work and to pay all their expenses through school. If a boy is interested in grain or vegetables or beans, he may lease land on a crop share basis, prepare the ground, seed it to the desired grain, harvest and thresh the crop, himself arranging all details and hiring his own crew. Practical training of this kind is coordinated with related classroom instruction. From the beginning, the student is taught to budget his needs in the matter of feed, seed, labor, etc., for a period of time, and to carry out his project within the budget specifications. In this way he "learns by doing, and earns as he learns." The student's work is practical "dirt farming" carried out with attention to scientific and economical ends. Many boys are paying their way, in part or whole, by their projects; others leave school at the end of the year with a satisfactory beginning in purebred livestock or poultry, in addition to possessing a good education. The Agricultural Department of the school is at times asked to recommend students for positions of responsibility, salaries ranging from \$75. with board to \$150.00 per month. Students are at all times in demand for positions as skilled laborers, which positions may lead to promotion upon evidence of training, ability to work, and other factors that usually make for success and advancement. The direct purpose of the Agricultural Department is to train a boy so that after he receives his certificate he may enter his particular occupation as a tractor operator, farm machine repairer, diversified farmer, ranch worker, orchardist, truck gardener, florist, or expert in animal or poultry husbandry.

MECHANICS—ENGINEERING COURSES

Description. The Mechanics Engineering Department offers a general course and a number of specialized courses. It is the purpose of the department to develop that amount of trade skill sufficient to fit the student for the work in which he is to earn a living, and, at the same time, provide him with a foundation which will enable him to rise in his trade as opportunity offers. Opportunity is given the more advanced students to develop ability in leadership by placing them in charge of jobs, in shop work, with students working under them. All courses leading to graduation provide a good education based upon requirements of the State Board of Education for graduation from high school.

The General Course. is intended to meet the needs of those students who have not decided upon the courses in which they wish to specialize. If, however, a student has evidenced aptitude for a particular

work, he may be transferred from the general to the special course. The general course is of particular advantage for one who wishes to work into a position as minor executive in an industrial concern in which a general knowledge of mechanics is essential. The course provides training in at least two shops; a good grounding in mathematics and science; and both theoretical and practical knowledge of steam and gas engines, electricity, surveying and hydraulics. The general course is as follows:

GENERAL COURSE IN MECHANICS

First Year			Second Year		
	Class	Prac- tice		Class	Prac- tice
English I.....	5	0	English II.....	5	0
Applied Science	5	0	Geometry or Algebra.....	5	0
Algebra or Applied Math.	5	0	Mechanical Drawing 3 and 4	0	8
Mechanical Drawing 1 and 2	0	8	Study	0	5
Study	0	5	Machine Shop 1 and 2 (or elective)	2	12
Shop (forge, 1st sem.; wood work, 2nd sem.)....	0	9	Physical Education	0	5
Physical Education	0	5	Assembly	0	1
Assembly	0	1	Glee Club (elective).....	0	2
Glee Club (elective).....	0	2			
<hr/>			<hr/>		
Total periods per week.....	15	30	Total periods per week....	12	33

Third Year

English III.....	5	0
Physics	4	4
Gas and Steam Engines....	3	4
Trigonometry and Solid Ge- ometry.....	5	0
Mechanical Drawing 5 and 6	0	8
Study	0	6
Physical Education.....	0	5
Assembly	0	1
<hr/>		<hr/>
Total periods per week..	17	28

Fourth Year

Electricity V.....	3	4
Advanced Algebra(1st sem.)	5	0
Hydraulics (2nd semester 3, class and 4 practice pds.)		
U. S. History and Civics....	5	0
Surveying	1	4
Shop sketching and Math..	0	4
Study	0	5
Chemistry	4	4
Physical Education.....	0	4
Assembly	0	1
<hr/>		<hr/>
Total periods per week..	18	26

Gas and Steam Engines. An elementary course in the study of the theory and practice connected with gas and steam engines. Among the subjects covered are: types of engines, indicator cards, mechanical and thermal efficiencies, care and trouble finding, and construction and care of boilers.

Elementary Hydraulics. A one semester course in Elementary Hydraulics dealing with the properties of water, at rest and in motion. It makes a study of problem, friction loss, pipe sizes, pump efficiencies and cost of pumping.

Surveying. A practical course in Elementary Surveying includes leveling, profiling, mapping, surveying for and computing area, and leveling for irrigation. The student becomes familiar with the careful handling and adjustment of instruments.

Shop Sketching and Mathematics. This is a study of design problems that will bring out the student's originality in whatever vocation he has chosen. The sketches are made freehand in a readable manner.

Forge Shop. A one year course in forge includes practical work in both iron and steel forging with studies in the properties, manufacture,

and heat treatment of both iron and steel. The shop work includes the common operations in forging, such as drawing, bending, welding, tempering, tool-making and general repair work for farm and shop. In connection with the forge shop we have a small brass foundry and all of the students taking forge are required to make a few molds and pour the castings. This is to give them a general idea of how castings are made and the requirements of good pattern, and not to make molders of them.

Acetylene Welding. Practice is given in the use of the welding and cutting torch. This course is given as an elective for Auto Shop and Machine Shop students so they will be more useful in their line of work. Practice is given in welding of sheet metal, structural steel, pipe, and castings. Students must have forge work before taking welding.

Electrical Welding. This course is given primarily as an elective for students in the Machine Shop and the Auto Shop. It is to give them a knowledge of electric welding which will make them more useful in their vocation. There will be an opportunity for a limited number of students to specialize in welding as a vocation.

Special Courses in Mechanics. These courses are offered to students who wish to specialize as machinists, auto mechanics, electricians or draftsmen. The arrangement of the courses is such that related work is applied directly to shop work, and for convenience the shop work is grouped according to the vocation chosen, as machinists, electricians, auto mechanics, draftsmen, and carpenters.

OUTLINE OF SPECIAL COURSES—MECHANICS

First Year			Second Year		
	Class	Prac- tice		Class	Prac- tice
For All Groups:			For All Groups:		
English I.....	5	0	English II.....	5	0
Shop Math. or Algebra.	5	0	Algebra or Geometry....	5	0
Mech. Drawing 1,2.....	0	8	Hygiene	1	0
Applied Science.....	5	0	Physical Education.....	0	5
Physical Education.....	0	5	Study	0	4
Assembly.....	0	1	Assembly	0	1
Study	0	5	In addition for Aeronauts:		
In addition:			Machine Shop 1.....	2	6
For Auto-mechanics,			Mech. Drawing 3 and 4..	0	6
Electricians, Machin-			Welding	0	10
ists: Forge, 1st sem... 0	11		For Auto Mechanics:		
(Machine Shop 2nd			Auto Shop I.....	5	10
semester 2-9)			Machine Shop 2 and 3... 2	6	
For Aeronauts and			For Carpenters:		
Draftsmen:			Mech. Drawing 3 and 4... 0	8	
Woodwork 1st sem..... 0	11		Woodwork II.....	0	16
(Forge 2nd sem.)			For Draftsmen:		
For Carpenters:			Machine Shop 1.....	2	8
Woodwork	0	11	Mechanical Drawing II.. 0	14	
			For Electricians:		
			Electrical Drawing I..... 0	4	
			Electricity I.....	5	15
			For Machinists:		
			Blue Print Reading..... 2	0	
			(Forge 2nd sem. 0-4)		
			Machine Shop II.....	2	20

Glee Club and Band are elective in both years.

Third Year			Fourth Year		
	Class	Prac- tice		Class	Prac- tice
For All Groups:			For All Groups:		
Physics	4	4	U. S. History and Civics..	5	0
Physical Education.....	0	5	Physical Education.....	0	5
Study	0	4	Assembly	0	1
Assembly	0	1	In addition for Aeronauts:		
In addition for Aeronauts:			Aero. Drafting.....	0	7
English III.....	5	0	Engines II.....	3	8
Engines I.....	5	8	Ship Construction II		
Trigonometry 1st sem...	5	0	and Aerodynamics.....	5	8
Ship Construction I.....	0	5	Meteorology and Nav- igation	3	0
(2nd sem. 0-10.)			For Auto-mechanics:		
For Auto Mechanics:			Auto Shop III.....	2	24
English III.....	5	0	Elective	0	10
Auto Shop II.....	5	15	For Carpenters:		
Machine Shop 4 and 5...	2	6	Electricity V.....	3	4
For Carpenters:			Woodwork IV.....	0	20
English III.....	4	4	Elective	0	5
Mechanical Drawing 5...	0	8	For Draftsmen:		
Trigonometry 1st sem...	5	0	Mechanical Drawing IV..	0	12
Wood Work III.....	0	15	Machine Shop 2 and 3...	2	6
(2nd sem. 0-20.)			Electricity V.....	3	4
For Draftsmen:			Elective	0	5
English III.....	5	0	For Electricians:		
Trigonometry 1st sem...	5	0	English III.....	5	0
Mech. Drawing III.....	0	11	Chemistry	4	4
(2nd sem. 0-16.)			Electricity III.....	5	12
Gas and Steam Engines, or elective.....	3	4	Elective	0	9
For Electricians:			For Machinists:		
Electricity II.....	5	8	Chemistry (for prospec- tive College students		
(2nd sem. 5-13).			only).....	4	4
Trigonometry 1st sem..	5	0	Machine Shop IV.....	2	20
Gas and Steam engines..	3	4	(For those taking chem- istry 2-12)		
Electrical Drawing II...	0	3	Shop Sketching 1st sem..	0	4
For Machinists:			Electricity V.....	3	4
English III.....	5	0	Public Speaking recom- mended	2	0
Trigonometry 1st sem...	5	0			
Mach. Shop III.....	2	16			
(2nd sem. 2-21).					

Band and Glee Club are elective in both years.

EXPLANATION OF MACHINISTS COURSE

Machine Shop I. The student begins with the chipping, care, tempering and grinding of chisels; the filing and study of different kinds of files and polishing of finished surfaces. Class work is given in blue print reading, and the use of the common small tools. Machine work is begun on the drill press.

Blue Print Reading. A study and analysis of machine shop blue prints. The student is taught to pick out parts of a complicated drawing so that he may make any part of a machine from the prints of the whole. This course is given in connection with the machine shop work.

Machine Shop II. This begins with the simple turning on a lathe. As a student develops skill, the machine work assigned becomes more difficult until he has completed all of the work commonly done on a lathe.

Machine Shop III. A continuation of course II and in addition planer and shaper work is taken up with a study of each machine and the kind of

work done on each. The student begins with plain surface finishing and as his skill develops takes up more complicated work.

Machine Shop IV. This course deals largely with operations of milling machines and automatic tool grinders, with practice in general repair work. The student is also given an opportunity to obtain some experience in shop foremanship.

EXPLANATION OF ELECTRICIANS' COURSE

Electricity I. Elementary electricity and magnetism, units and laws of simple circuits, heating effects and appliances, batteries, electro magnets, direct current generators and motors are studied in the class. The shop work consists of experiments, tests of machines, house wiring, applications of the underwriters' rules, switchboards and wiring layouts, and as far as possible coordinates with the class work. The course is for second year vocational students or those who have had the equivalent of vocational arithmetic and applied science.

Electricity II. This course is a continuation of course I and takes up alternating currents and circuits, transformers and their connections, single, two and three phase motors, alternators, circuit and metering problems and other features of alternating current work.

Electricity III. A continuation of course II and a brief review of course I but from a more technical point of view with more problems. This is a thorough course in alternating currents, power generation, transmission and distribution, motor characteristics, including all of the different types of alternating motors. The machines are analyzed by mathematics and vector diagrams in the class, and in the laboratory standard tests are worked out to check the mathematical calculations. The students are given practical experience in the operation of the school power plant.

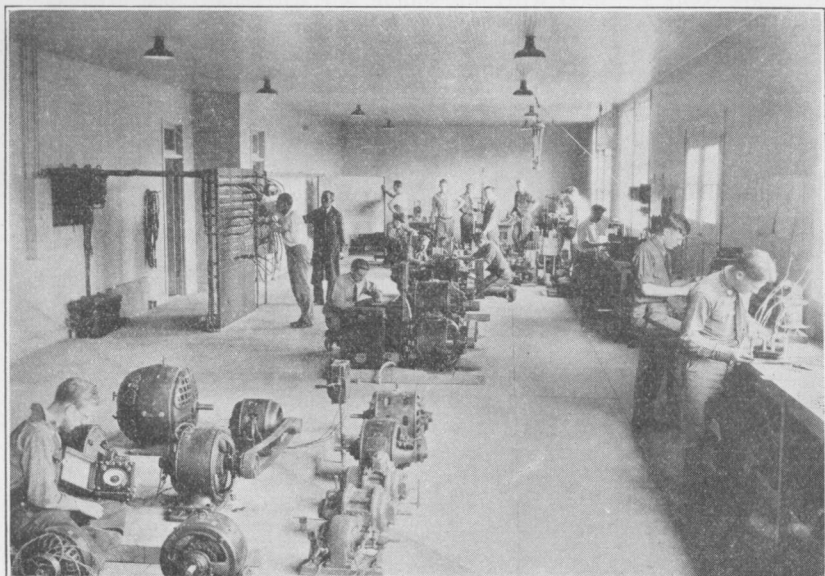
Electricity V. A brief practical course for general mechanics students desiring a practical knowledge of electricity and its applications in industry. The elements of magnetism, electrical circuits, both direct and alternating, appliances, motors, illumination and the applications are taken up.

FOR THE STUDENT WHO COMES TO THIS SCHOOL AS A HIGH SCHOOL GRADUATE

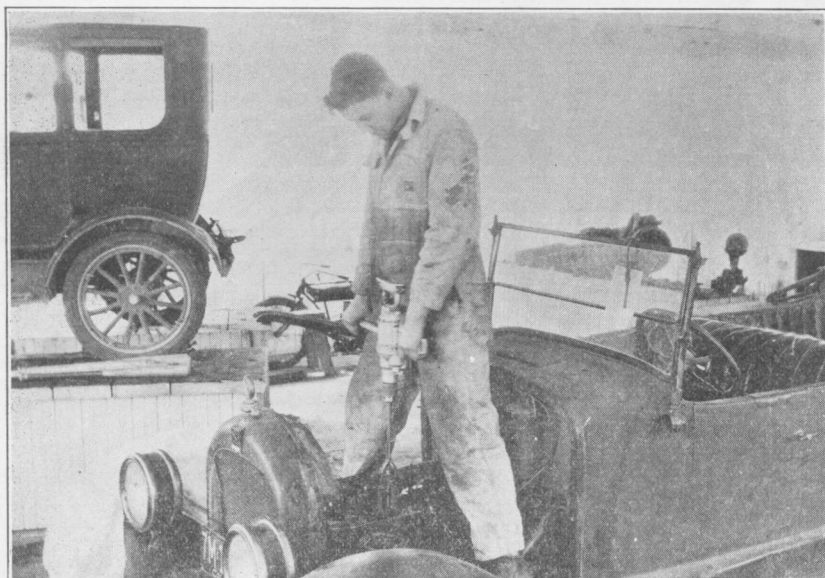
Electricity I and II. This is a rather detailed course in direct and alternating currents. It is given for the older students more intensively so that they may graduate from the electrical course in two years. The general course of Electricity I and Electricity II is covered but from a more advanced standpoint since the students are older. Dawses' Electrical Engineering, Vol. I is used as the text. There are 5 periods in the class and 10 in the laboratory per week. The second year is given over to Electricity III.

EXPLANATION OF AUTO MECHANICS COURSE

The courses in the auto shop are to develop skill and ability in the student on real repair jobs, under conditions as nearly as possible like those found in a commercial shop. All courses overlap in subject matter and material, and the progress of the student depends upon his own earnestness and application.



Interior of Electrical Engineering building.



Honing cylinders.

Auto Shop I. Shop work on simple selected repair jobs graded according to the ability of the student. Class work on the fundamental principles of construction, with assigned readings from a text book.

Auto Shop II. Shop work in general automobile repair work, including "trouble shooting," generator and electrical system repairs, machine work and welding on repair jobs. Class work and discussions depending upon jobs in the shop with assigned reading and studies in shop management and shop records.

Auto Shop III. Specialized work for the advanced students. The student is allowed to specialize in any particular line of work he prefers after he has shown that he has the necessary general knowledge of auto repair work.

EXPLANATION OF DRAFTING COURSE

Mechanical Drawing I. Elementary principles. This is a course for beginners in which the use of drawing instruments is taught by following simple exercises in lines, lettering, circles and curves. A selection of graded exercises brings out the major principles used in all general mechanical drawings.

Mechanical Drawing II. Engineering drawing. This course takes up the principles of drawing as used in the industrial world. It takes up problems in orthographic projection, isometric projection, and general detail drawings of machines and cross sections.

Mechanical Drawing III. A continuation of Mechanical Drawing II for students who wish to become mechanical draftsmen. Special attention is given to see that the student is assigned work in which he most needs practice.

Mechanical Drawing IV. A more advanced course in shop drawing, taking up structural drawing, sheet metal drawing and detailed machine construction.

Architectural Drawing I. Exercises in conventional methods of presenting building construction plans. The text used is designed to acquaint the student with the best prevailing practice in architectural drafting. Open to students who have completed Mechanical Drawing I.

Architectural Drawing II. This is a continuation of the preceding course. Students are given elementary problems in the design of buildings, and changes in the design of existing buildings, interior arrangement, lighting, heating, sanitary arrangement and elementary specifications.

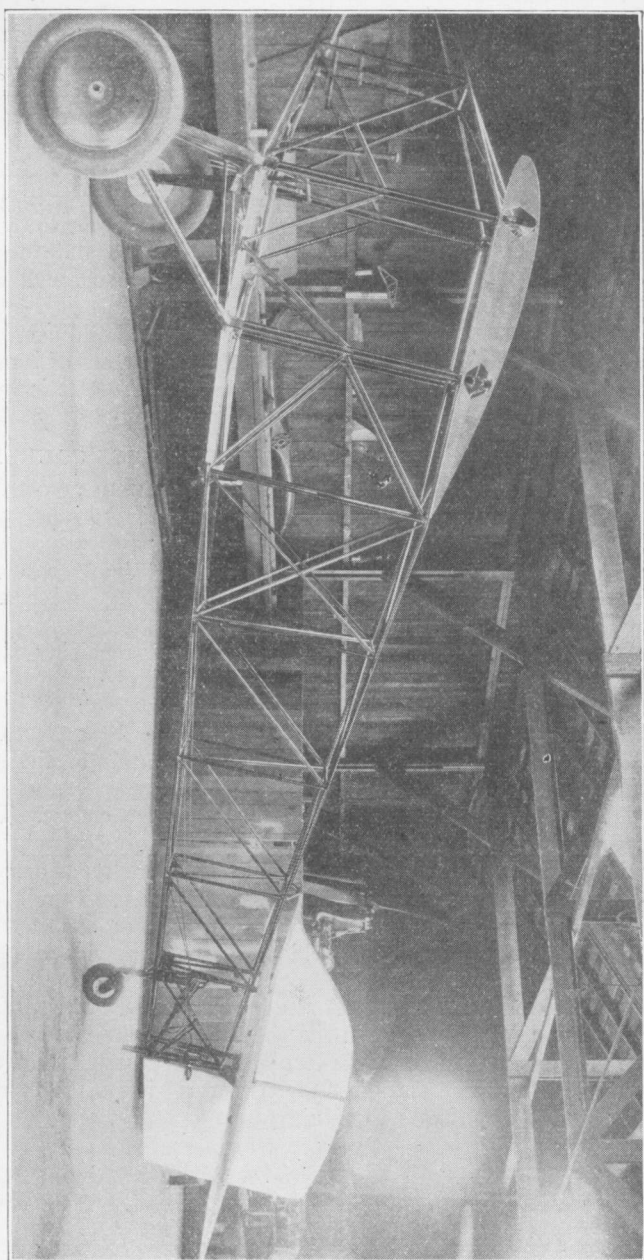
Architectural Drawing III. A continuation of Architectural Drawing II. Original design of larger buildings and residences with complete blue prints, specifications, bills of materials, and estimates of cost.

Electrical Drawing I. An elementary course for regular students in electricity who have completed Mechanical Drawing I. This course consists of simple and conventional diagrams supplemented by drawing of circuits used in shop work and class room problems.

Electrical Drawing II. A continuation of Course I. The student is advanced to more difficult problems of designs and switchboard drawing as rapidly as he masters the work.

EXPLANATION OF WOOD-WORKING COURSE

Wood Work I. A practical course in bench wood work. The course is so planned that the student will obtain practice in making the common



Steel fuselage of airplane under construction in the aeronautics shop. Visitors find the fuselage especially interesting because of the high quality of workmanship, including welding, revealed.

joints used in carpentry and cabinet making. Work is given on the use and care of hand tools. Study of the various kinds of lumber and the uses for which they are particularly adapted is also made.

Wood Work II. This course continues the work given in course I and takes up the use and care of power machines, saw filing, and the use of the steel square. Particular emphasis is laid on the principles of carpentry construction as exemplified in farm buildings and small houses, estimating and bills of materials.

Wood Work III. Elective courses in Carpentry, Cabinet Making, Pattern Making or Wood Turning. The student will be expected to elect one line of wood work and follow it throughout the year. Advanced students will be given practice as shop foremen and foremen of repair gangs, thus giving them practice in handling men as well as the responsibility of production.

Wood Work IV. Problems in estimating buildings from the standpoint of the contractor and architect. Figuring costs of lumber, hardware, plumbing, electrical fixtures, painting, labor, etc. Practical work on buildings and building repairs and remodeling.

EXPLANATION OF AERONAUTICS COURSE

It is the aim of the aeronautics department to prepare the student to take care of an airplane and do necessary repairs to plane and the engine; to train skilled workmen to build and repair airplanes and engines. One or more planes are constructed in the school shop every year and experience is given to all students in overhauling and repairing different types of engines.

Engines I. Practice in overhauling and repairing airplane engines. The student begins the work on some of the older types of engines and becomes familiar with the methods and accuracy required in airplane work. Brake tests are run, and tests are made for different causes of engine failure. The class work covers the fundamentals of the gas engine and of air craft engine construction.

Engines II. A continuation of the above course. The class work goes more into the detail theory of the gas engine. Study and shop work deal with modern types of engines. Six different types of engines are now in the shop and these are timed and run on the test stand.

Welding. Theory and practice in electric and acetylene welding. Special attention is given to welding of sheet metal and steel tubing used in air craft construction.

Ship Construction I. A study is made of the different types of construction in airplanes. In the shop the student works on the construction of a plane. One or more airplanes are constructed in the school shop each year. Special attention is given to materials of construction, strength of materials, and shapes to give greatest strength.

Ship Construction II, and Aerodynamics. A continuation of course I with a more theoretical consideration of wind resistance and wing shapes for greatest lift. Special attention is given to the costs of different types of construction. In the shop the student is given more responsibility and is fitted to do the more important parts of the construction work. The classwork contains an elementary study of aerodynamics.

Meteorology and Navigation. Elementary work in terrestrial navigation with problems in latitude and longitude determination. A study of

instruments required for navigation is taken up along with the study of charts and maps. Some time is given over to the study of weather conditions as indicated by the daily weather charts.

PRINTING COURSE

For those who select printing as a vocation, a four-year course is recommended. Equipment of the shop is complete. The following course is usually followed by printing students:

First Year		Second Year	
	Periods		Periods
English I	5	English II	5
History I	5	History II	5
Physical Education	5	Physical Education	5
Assembly	1	Assembly	1
Print shop work.....	29	Print shop work.....	29
	<hr/>		<hr/>
Total periods per week.....	45	Total periods per week.....	45
Third Year		Fourth Year	
	Periods		Periods
English III	5	U. S. History.....	5
Biology	5	Journalism (optional)	5
Physical Education	5	Physical Education	5
Assembly	1	Assembly	1
Print shop work.....	24	Print shop work.....	34 or 29
Journalism	5		<hr/>
	<hr/>	Total periods per week....	45
Total periods per week.....	45		

THE ACADEMIC DEPARTMENT

The work of the Academic Department is designed primarily to meet the needs of the students in the vocational courses. Much of the work in these courses is dependent on an adequate foundation in English, mathematics and the arts and sciences. The relation of vocational to academic work is shown in each case under the outline of the course.

In addition to this work the department also offers an Academic Course. This course is given chiefly to meet the needs of students who enter the vocational courses, but who, finding that they possess the desire and aptitude for more advanced study, desire to add to their work the few subjects which will properly prepare them for college. A limited number may also be enrolled who are unable to obtain an adequate high school education at their own homes.

No definite course is laid down for the students in this department as their objectives should determine its content. The minimum requirement for graduation is sixteen units including three years of English, a year of laboratory science, and a year of American History and Civics. All courses should be so arranged as to provide three years of work in at least two academic subjects besides English. A student who wishes to enter college should take at least twelve units of academic work, the subjects chosen depending on the course which he wishes to take in college. In every year electives may be chosen from the vocational courses. Physical education is required throughout the course. The department reserves the right to refuse admittance to any student who, because of previous record or the result of a mental aptitude test, does not seem well adapted to the work required.

First year—English I, Algebra, History I, foreign language electives.

Second year—English II, Geometry, History II, foreign language, Biology, electives.

Third year—English III, Trigonometry and Solid Geometry, Chemistry, foreign language electives.

Fourth year—English IV, Algebra II, U. S. History and Civics, Physics, electives.

Among the electives offered are music, dramatics, journalism, public speaking, mechanical drawing, and subjects chosen from the courses in agriculture, mechanics, and engineering.

ENGLISH

English I. This course has two divisions, composition and literature. The first emphasizes clearness, conciseness, and accuracy of written and oral expression. The second attempts to arouse an appreciation of good modern literature and to teach the student to express the ideals expressed by the authors in terms of his own experiences.

English II. This course is a continuation and extension of the work in English I. Ability to address an audience is further developed by informal debating and reports. The work in literature and composition is correlated with the vocational needs of the students.

English III. The purpose of this course is to prepare the student for college and for the enjoyment of leisure hours. The work is as practical as possible, but is cultural as well as vocational. In composition the organization of material of fifteen hundred words or more is emphasized. The development of the ability to give reports of some length and to take charge of organizations and present propositions in a clear manner constitute the aim in oral English.

English IV. This course gives the student opportunity to read more widely from the masterpieces of English literature than is desirable in earlier courses. It aims to stimulate a love for good literature and to establish simple but trustworthy standards by which the student may test his reading. A few modern selections are assigned for rapid reading. The composition work in this course gives finer practice in all forms of writing, but is designed mainly to follow out the lines of the pupil's individual needs and capabilities.

Journalism I. The purpose of this course is three-fold: (1) to teach the students to read newspapers and magazines discriminatingly; (2) to teach them to recognize and collect news material; (3) to teach them to organize and write what they find in a form suitable for publication. Plenty of practical experience is available for the student who is willing to work, as the Journalism classes form the nucleus of the student group which puts out the school publications: *El Rodeo*, *The Polygram*, and *The Parakeet*. Three weeks are devoted to the study of advertising. Some attention is given to individual instruction in English, but, in order to enter the course, the student should have completed four semesters of high school English, with recommending grades for at least two of these semesters. English III, unless previously taken, must be taken as a parallel course. Ordinarily it is inadvisable for the student to enter the course in Journalism I in the middle of the year as the background work in technique is given early in the year.

Journalism II. An extension of Journalism I, designed for Seniors and Junior College students who wish to continue their work in Journalism. Only those who have satisfactorily completed Journalism I or its equivalent are admitted to Journalism II. The fact that this course is limited in membership affords opportunity for individual attention and experience. Journalism students are active in The Press Club.

MATHEMATICS

The courses in mathematics are designed to develop reasoning power and ability to solve actual problems as they are likely to occur. Emphasis is placed upon vocational needs.

Algebra. Two years of algebra are offered. The work presents a system of reasoning which simplifies the solution of complicated problems.

Geometry, plane and solid. A year's work is given in plane geometry and a half-year in solid geometry. They deal with the facts of plane and solid figures.

Trigonometry. This subject is essential to land measurements and engineering.

Vocational Mathematics, I, II and III. The sections of a two and a half year course containing those elements of arithmetic, geometry and trigonometry essential to vocational work.

HISTORY

History I, Ancient and Medieval. A study of the ancient and medieval world in relation to present-day life and institutions.

History II, Modern European. This subject shows the gradual development of modern conditions.

History III, American History and Civics. A study of the history of the American people, especially with reference to economic, social and civic aspects. It includes a study of present-day conditions and the position of the United States as a world power.

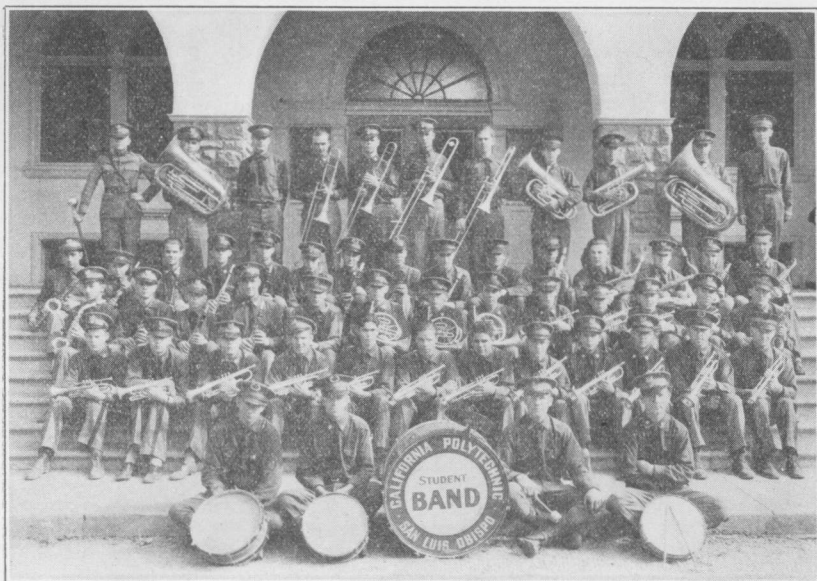
SCIENCE

Applied Science. A study of principles of physical science essential to a knowledge of work of the vocational courses. It may be taken as an independent course or as a preparation for more advanced work in physics.

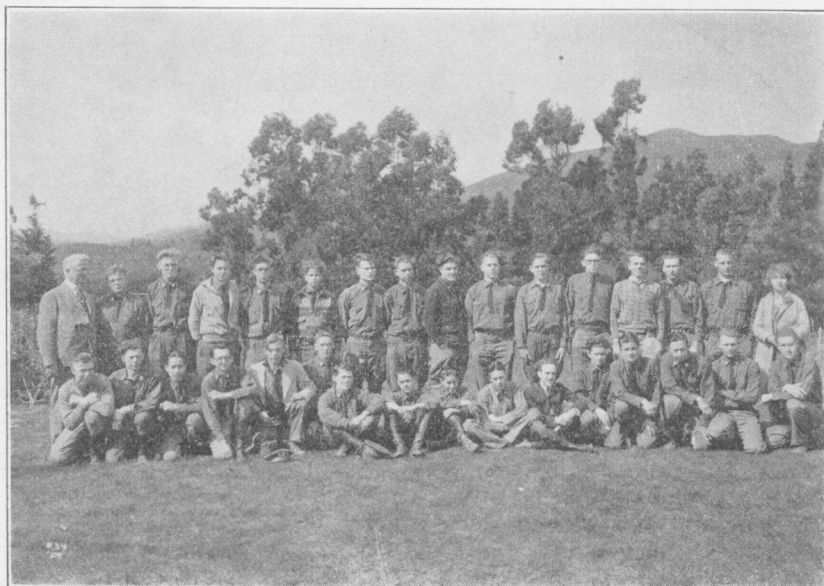
Biology. A study of the science of living things. It gives a knowledge of plant and animal kingdoms and of the relation of different species to the welfare of man. This course includes a study of metabolism, plant and animal breeding, reproduction, the living cell, evolution and hygiene.

Chemistry. This course contains the fundamentals of a foundation course for later work in the chemistry of industry, chemistry of agriculture and chemistry of the household.

Physics. A study of the mechanics of liquids, gases and solids, together with the laws of electricity, light and sound. It stresses the application of physics to industries, and prepares the student for higher courses in mechanics.



The Polytechnic Band is an intensely loyal organization.



Boys' Glee Club.

FOREIGN LANGUAGES

Three years of Spanish and three of French are provided for those who desire them. The courses are intended primarily for those who desire to enter universities, although others who wish to enter vocations which require knowledge of foreign language are also admitted.

MUSIC

Courses in chorus singing, orchestra and band are offered to all students who have musical ability. Private work in voice and piano will be given to students who show talent if the instructor's hours permit.

PUBLIC SPEAKING

Interpretative speech is recognized as being not only ornamental and cultural, but also useful and necessary. Men and women in business and professional occupations are more and more recognizing the need of training for effective speech. It is the aim of this course to develop confident speakers who can convey their ideas or the ideas of others.

DRAMATICS

A two years course is given in play making, play production, makeup, stage effects and settings. Sophomore standing is a pre-requisite to Dramatics I.

THE JUNIOR COLLEGE DIVISION

Work in the junior college division of The California Polytechnic has been in operation two years. For years previous, however, high school graduates have been attending in considerable numbers to take advantage of the opportunities for vocational training offered by the four-year courses. Those desiring advanced work were handicapped, by the lack of academic work sufficiently advanced to furnish the tools for needed technical training. This want has now been met by the addition of two years of college work. At the same time the vocational courses have been added to, revised, and strengthened.

During the second year of work, one hundred twenty students were enrolled in the college division. Most of these were vocational students, taking courses designed to fit them to become practical engineers or high class assistants, foremen or superintendents in many of the trades and industries. In offering these courses The California Polytechnic is rendering a service duplicated in kind by no other institution on the Coast. That there is a genuine need for this service is evidenced by the keenness of the demand for training by students from many parts of the State. Most of these are young men of fine ability. Some lack the type of ability required for the theoretical work of the university; others frankly prefer work of the practical type.

Of the students who come, a few find that they want university training. That they may be transferred to the University with no loss of time, foundation courses in English and Social Science are added. The work in science and mathematics provided for the vocational students is

ample to meet the demands of the University. Not more than 16 units may be carried in the first semester by an academic student.

A total of sixty-four units is required for graduation from all courses. All must comply with the following requirements: Subject A, no credit; English, 6 units; Social Science, 6 units; Science or Mathematics, 6 units; Physical Education and Health, 4 units. All courses must be so arranged as to show at least 20 units in one department.

An examination in Subject A (English Composition) will be given at the California Polytechnic by the University of California some time in June. Those who fail to pass are required to take a course in English composition without credit.

Related subjects offered:

FIRST YEAR

First Semester			Second Semester		
	Cl.	Lab.Units		Cl.	Lab.Units
English 1-A.....	5	3	English 1-B.....	5	3
Physics 1-A, 1-B.....	5	8 6	Physics 1-C, 1-D.....	5	8 6
Analytical Geometry 3-A..	5	3	Differential Calculus 3-B..	5	3
Advanced Algebra 8.....	5	3	Political Science 1-B.....	5	3
Political Science 1-A....	5	3	European History 4-B.....	5	3
European History 4-A....	5	3	Trigonometry C.....	3	2
Physical Education 1.....	0	5 1	Physical Education 1.....	0	5 1

SECOND YEAR

First Semester			Second Semester		
	Cl.	Lab.Units		Cl.	Lab.Units
English 5, 6-A.....	5	3	English 5, 6-B.....	5	3
Chemistry 1-A.....	5	8 5	Chemistry 1-B.....	5	8 5
Integral Calculus 4-A....	5	3	Integral Calculus 4-B.....	5	3
Economics 1-A.....	5	3	Economics 1-B.....	5	3
English History 5-A.....	5	3	English History 5-B.....	5	3
Physical Education.....		5 1	Physical Education.....		5 1
Zoology 1-A.....	4	8 4	Zoology 1-B.....	4	8 4

The three year courses in French and Spanish offered in connection with the four year course meets the University requirements in foreign languages.

The results of the work of the students in all junior college subjects will be reported in six grades, four of which are passing, as follows: A, excellent; B, decidedly good; C, fairly good; D, barely passed; E, conditioned; F, failed. The standard set for grade D may not be lower than that formerly set for grade 3.

In all college subjects, grade points or quality units will be assigned as follows: A, 3 points per unit; B, 2 points per unit; C, 1 point per unit; D, no points per unit; E and F minus 1 point per unit. Removal of grades E and F will entitle the student to as many grade points as may have been lost by the condition or failure, but no more. For recommendation to the university the student must have attained at least as many grade points or quality units as there are time units or quantity units in all courses undertaken by him which he has carried.

PHYSICAL EDUCATION

The California Polytechnic is now offering high school graduates a course in physical education and athletics coaching. From the vocational point of view the field is practically untouched. The course, moreover, is one which appeals to young men. The work itself is clean and requires no more preparation than do the other vocations.

The course given is designed to prepare a man for upper division standing in the universities or teachers colleges.

The department offers a complete program in all athletic sports. Membership in The California Coast Conference assures good competition in at least five activities. Intermural athletics is also stressed and cooperation with the county system of schools allows practice in coaching. Projects of coaching in basketball, baseball and track will be a feature of the course.

COURSE OF INSTRUCTION

P. E. 1, 2. Physical Education for Men. Required courses of all College Students. 1 unit (Fall and Spring).

P. E. 3, 4. Military Training. (Fall and Spring) 1 unit.

P. E. 5. Personal Hygiene. 1 hour per week. Lecture (Fall) 1 unit.

The influence of diet, exercise, ventilation, light, etc., upon the welfare of the individual and the community. Health and disease. Instinct, habit, and knowledge in relation to health attainment.

P. E. 6. Community Hygiene. (Spring.) Lecture. 1 unit.

Class discussions will follow a text. Notes, assigned readings, and examinations.

P. E. 10. Football. 15 hours per week. Games on Saturday. (Fall) First 12 weeks. 2 units.

Team play and fundamentals. Lecture four days weekly. Laboratory 4 to 6 daily.

P. E. 11. Basketball. second half first semester. Two hours daily. Lecture and laboratory. 2 units.

P. E. 12. Track and Field. Principles and Practice in Coaching, Competition. (Spring.) 2 units.

P. E. 13. Officiating Major Sports. Lecture, (Fall) 2 hours weekly 2 units.

Methods of officiating football, basketball, track and field, baseball, tennis. Assigned readings. Notes. Examinations. Methods of forming an officials' association.

P. E. 14. Baseball. Two hours daily. Lecture and laboratory. (Spring) 2 units.

P. E. 15. Anatomy and Physiology. (Kinesiology.) Notes, text, examinations. 2 hours weekly. 2 hours laboratory. (Fall) 3 units.

P. E. 16. Target Practice. (Spring.) 1 unit. 2 hours weekly.

Under military department. Use of small arms. Fire control. Range. We have a wonderful range on the campus.

P. E. 17. First Aid. Principles and practice of. A lecture and demonstration course designed principally for those expecting to coach athletics. 2 units.

P. E. 18. Calisthenics and single line marching. (Spring and Fall) 2 units.

In addition to the work in physical education, work must be selected from the courses offered on the previous page to make a total of 64 units for the two years' work. These must be selected so as to comply with the following requirements: The passing of Subject A; military science and physical education, 8 units; foreign language, 15 units (this may be taken in high school, 3 units being allowed for each year of high school work in a foreign language); at least elementary algebra and plane geometry which should have been completed in high school; at least 12 units of natural science; and at least 3 full year courses selected from the following groups; English, additional foreign language, mathematics, social science.

ENGINEERING-MECHANICS DEPARTMENT

Electrical Measurements. A detailed course in measurements in electricity and magnetism and the applications of measurements to the commercial world. Advanced and theoretical problems in electrical machinery circuits, and magnetic circuits as considered in present day practice. Studies of instruments, relays, and switching devices are taken up and their application considered. This course follows Elec. IV.

Electrical Power Plants. Studies in the problems of operation of power generating stations from the standpoint of the public utility engineer. Consideration of costs, machinery, equipment, service and financial problems are taken up and the student is given a fair knowledge of the problems of power generation. A one semester course.

Ship Design and Construction. Largely work in the drafting room. It includes stress analysis of a plane. The department of commerce regulations will be used along with the text in the stress analysis. Aero-drafting is strongly recommended as a good opening for the future worker, after a survey of the aeronautical field had been completed by the Gugenheim Foundation.

Problems in Design. A continuation of ship design and construction taking up largely problems in design on the ship under construction in the shop.

Ship Construction and Aerodynamics. The class work takes up more advanced problems in aerodynamics with some navigation. The navigation will include actual experience with the use of the sextant in locating position while in the air. There will also be a study of the control surfaces while in flight. The shop work will be on the construction or repair of planes.

Outline of College Division Courses in Mechanics Department.

First Year			Second Year		
All Groups:	Cl.	Shop	All Groups:	Cl.	Shop
Analytic geometry and differential calculus.....	5	0	Integral Calculus and differential equations.....	5	0
Physics.....	5	8	Chemistry (or).....	5	8
Strength of Materials.....	5	0	Theoretical mechanics.....	5	0
Electricity: Electrical Measurements.....	5	8	Graphical solution of problems and kinematics....	2	4
Machine Shop: Heat treatment of steel and shop problems.....	3	10	Electricity: Electrical power plants and substations..	5	8
Drafting: Machine design...	3	10	Machine Shop: Shop management.....	5	10
Automobile:			Drafting: Problems in design	5	16
Heat treatment of steel and welding.....	3	4	Automobile: Shop management.....	5	10
Trouble hunting.....		8	Aeronautics:		
Aeronautics: Ship design and construction.....	5	8	Problems in design.....	2	4
			Ship construction.....	5	10